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(57) Abstract: Method of Producing Sol-gels and Sol-gel Biosensors. The invention discloses a method of producing a layer of sol-gel on a substrate comprising the steps of: (a) providing a acidified sol suspension; (b) at least partially neutralising the acidified sol suspension to form a neutralised sol suspension; (c) contacting an electrically conductive surface with the neutralised sol suspension; and (d) applying an electrical potential to the electrically conductive surface to cause a layer of sol-gel to form on the surface of the electrically conductive surface. Preferably, the neutralised sol-gel has a biological material, such as an enzyme added. Biosensors obtained by using the method are also provided.